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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/569,173	02/22/2006	Mark T. Johnson	GB030145	7872
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EXAMINER				
CRAWLEY, KEITH L				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/569,173

Applicant(s)

JOHNSON ET AL.

Examiner

KEITH CRAWLEY

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 7, 9, and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Aoki (US 2002/0003520).

Regarding claim 1, Aoki discloses an active matrix display device (¶ 36) comprising: a display with a plurality of display pixels (fig. 4, ¶ 37);

a data input for receiving a data signal (fig. 6, converter 41, see ¶ 47);

a controller for distributing said data signal over said display pixels to generate an image on said display with an overall brightness value for each display pixel during at least one frame period (fig. 6, controller 50, see ¶ 48),

wherein said device is adapted to divide said frame period for at least one subset of said display pixels (figs. 6 and 8, frame period divided into antecedent and subsequent sub-frames for pixel range Dp, see ¶ 50-51)

such that said display pixels of said at least one subset have at least a light output at a first non-zero brightness level during a first sub-period of said frame period (fig. 9, antecedence sub-frame, see ¶ 54-55) and at a second non-zero brightness level

during a second sub-period of said frame period (fig. 9, subsequence sub-frame, see ¶ 55-57).

wherein the first and second levels of brightness and associated sub-periods are selected so that the time averaged sum of said brightness levels of said pixels within said at least one subset is substantially equal to said overall brightness level of said image (fig. 9, see ¶ 58-60),

said second level being maintained a stable level during the second sub period (fig. 9, brightness of subsequence sub-frame constant, see ¶ 55-57)

and the first and second levels being in a known ratio (figs. 8 and 9, see ¶ 55-57, Sc1 is divided by attenuation coefficient F, see also ¶ 50).

Regarding claim 2, Aoki wherein said display is a colour display and said subset is defined by colour (R, G, B) (¶ 40, see also ¶ 47).

Regarding claim 3, Aoki discloses wherein said device is adapted to determine one or more particular areas of said display and said subset is defined by said areas (fig. 6, frame period divided into antecedent and subsequent sub-frames for pixel range Dp, see ¶ 50-51).

Regarding claim 4, Aoki discloses wherein said device is adapted to determine the total time during which said display pixels have had a light output (¶ 74, one frame)

and said subset is defined by said total time (¶ 74, attenuation coefficient F based on luminosity signal in one frame).

Regarding claim 5, Aoki discloses wherein said first brightness level exceeds said second brightness level (fig. 9, see ¶ 55-58, Sc1 is divided by attenuation coefficient F).

Regarding claim 7, Aoki discloses wherein said device is adapted to supply a select signal for selecting said display pixels of said subset (fig. 6, see ¶ 48-50, clock signals Sgt and Sdt, and line starting signals Sg and Sd),

said select signal comprising at least a first select signal triggering said first sub-period and a second select signal triggering said second sub-period (figs. 7 and 8, see ¶ 51-53, frame buffer 42 generates two sub-frames and signal switching circuit allocates Sc1 and Sc2 to respective sub-frames, see also ¶ 54 and ¶ 57).

Regarding claim 9, Aoki discloses wherein said display is an active matrix liquid crystal display (¶ 36),

said device comprising a backlight (inherent in liquid crystal displays)

and being adapted to control said backlight such that said light output of said display pixels of said at least one subset yields said first brightness level during said first sub-period and said second brightness level during said second sub-period (same rationale as claim 1).

Regarding claim 11, Aoki discloses wherein said device is adapted to generate said light output such that said second brightness level has a brightness that is 30% or less than said first brightness level (¶ 55-56).

Regarding claim 12, this claim is rejected under the same rationale as claim 1.

Regarding claim 13, Aoki discloses wherein the first and second sub-periods are adjacent in time (fig. 9, antecedence sub-frame adjacent to subsequence sub-frame).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki in view of Koyama (US 6,828,950).

Regarding claim 6, Aoki fails to disclose wherein said first sub-period has a shorter duration than said second sub-period.

Koyama teaches wherein said first sub-period has a shorter duration than said second sub-period (col. 13, line 7-12, length of display period of the sub-frame periods can be varied).

Both Aoki and Koyama are directed to active matrix displays utilizing sub-frame periods. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the display of Aoki with the driving method and display of Koyama since such a modification provides a display device with high image quality (Koyama, col. 31, line 13-14) in which the number of constant current sources required for gray-scale display can be decreased (Koyama, col. 13, line 24-31).

Regarding claim 8, Aoki discloses that said at least one subset of display elements is driven to at least said first brightness level during said first sub-period and said second brightness level during said second sub-period (same rationale as claim 1).

Aoki fails to disclose wherein said display pixels comprise current emissive elements driven by drive elements and said device is adapted to vary a voltage for said drive elements.

Koyama teaches wherein said display pixels comprise current emissive elements driven by drive elements (fig. 5, EL element 304, see also col. 3, line 1-12)

and said device is adapted to vary a voltage for said drive elements (fig. 2, EL driving voltage).

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki.

Regarding claim 10, Aoki discloses wherein said display is a colour display (¶ 36).

Aoki fails to disclose said backlight is a LED-backlight or a colour sequential backlight. LED-backlights and colour sequential backlights are well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the display of Aoki with an LED or a colour sequential backlight since such backlights are well known in the art for providing color displays.

Response to Arguments

6. Applicant's arguments with respect to claims 1 and 12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH CRAWLEY whose telephone number is (571)270-7616. The examiner can normally be reached on M-F, 7:30-5:00 EST, alternate Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571)272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bipin Shalwala/
Supervisory Patent Examiner, Art Unit 2629

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/KEITH CRAWLEY/

Examiner, Art Unit 2629